

Dietary reference values and dietary guidelines



A balanced diet is one that provides adequate amounts of energy and nutrients for health and well-being. Dietary Reference Values (DRVs) are the complete set of nutrient recommendations and reference values, such as population reference intakes, the average requirement, adequate intake level and the lower threshold intake. DRVs can be used for instance as a basis for reference values in food labelling and for establishing food-based dietary guidelines (FBDG). FBDG translate nutritional recommendations into messages about foods and diet, and can guide consumers on what to eat and help them make healthy dietary choices.

EU framework

The scientific advice on nutrient intakes is the basis for Community action in the field of nutrition. For example such advice has been used by policy makers for decisions on food labelling. At EU level, the 1992 opinion of the [Scientific Committee on Food \(SCF\) on the nutrient and energy intakes](#) for the European Community provided reference intakes for energy and certain nutrients. There is now a need for this advice to be reviewed and updated to ensure that the Community action in the area of nutrition is underpinned by the latest available knowledge.

Scientific advice in this field is also available from other sources. Scientific advisory bodies in Member States have provided advice on nutrient intakes. International organisations such as the World Health Organisation have published recommended intakes for certain nutrients and dietary components. Taken together these reports suggest a growing degree of consensus, but there are variations on some issues.

EFSA' s role and activities

EFSA provides the most up-to-date and comprehensive scientific advice to support EU policy makers in their decision making process in the field of nutrition. EFSA's advice on nutrient intakes provides an important evidence base to underpin nutritional policies, the setting of diet-related public health targets and the development of consumer information and educational programmes on healthy diets.

In theory

EFSA identifies and reviews scientific studies, including reports of national and international authorities, for possible health effects of a specific nutrient.

In practice

Health effects of dietary fibre are identified by reviewing scientific studies.

EFSA evaluates evidence for relationships

The evidence for the relationship between

between the intake of a nutrient and defined health outcomes.

dietary fibre intake and bowel function or diet-related diseases is evaluated.

Where nutrient-health relationships are established, EFSA provides scientific advice which may be used by policy makers.

A daily intake of 25 g of dietary fibre is set as a Dietary Reference Value because it is adequate for normal bowel function in adults, while consumption above 25 g dietary fibre per day may reduce risk of coronary heart disease and type 2 diabetes and may improve weight maintenance.

How is this advice utilised?

Policy makers, such as Member States authorities, may use such scientific advice (also taking into account food and nutrient intakes and health status of their population) when making nutrient intake recommendations (e.g. setting a recommended daily intake of dietary fibre of 25 g for adults) or when establishing food based dietary guidelines (e.g. recommending regular consumption of fruits, vegetables and wholegrain cereals).

EFSA's work on DRVs

EFSA has been asked by the European Commission to review and update the reference values for nutrient and energy intakes established in 1993 by the Scientific Committee on Food. In doing so EFSA is taking into account new scientific evidence and recent recommendations issued at national and at international level. In addition, the Commission has also asked EFSA to help public authorities in Member States in translating nutrient-based recommendation into practical food-based dietary guidelines.

In order to ensure a consistent approach throughout, EFSA's Panel on Dietetic Products, Nutrition and Allergies (NDA) laid down general principles for establishing Dietary Reference Values in an opinion published in March 2010. In addition, the Panel also established DRVs for carbohydrates, dietary fibre, fats and water.

Moreover the Panel published a further opinion on food-based dietary guidelines providing advice to policy makers on how to translate nutritional recommendations into messages about foods.

- [EFSA sets European dietary reference values for nutrient intakes](#)
- Before being finalised the draft opinions were also discussed at a National Expert Meeting with Member States on DRVs held in Barcelona in September 2009. [Meeting with national experts on Dietary Reference Values \(DRVs\)](#)

All draft opinions on DRVs, including those published in March 2010, are subject to public consultation with Member States, the scientific community, and other stakeholders before their finalisation. This ensures that EFSA benefits from the widest range of views to finalise the work and provide the most up-to-date, clear and comprehensive advice to EU decision makers.

Besides, EFSA has also provided scientific advice on the setting of tolerable upper levels of intakes (UL) for vitamins and minerals. These DRVs represent the highest level of daily intake of a nutrient that is likely to pose no risk of adverse health effects. The UL set by EFSA will support the European Commission and Member States in the establishment of maximum levels of nutrients authorised in fortified foods and food supplements.

- [Tolerable Upper Intake Levels for Vitamins and Minerals by the Scientific Panel on Dietetic products, nutrition and allergies \(NDA\) and Scientific Committee on Food \(SCF\)](#)

Overview of public consultations related to DRVs:

Opinions	Status of the public consultation
General principles for setting DRVs	Closed. Opinion published in March 2010.
DRVs for water	Closed. Opinion published in March 2010.
Guidance for food-based dietary guidelines	Closed. Opinion published in March 2010.
DRVs for carbohydrates and dietary fibre	Closed. Opinion published in March 2010.
DRVs for fats	Closed. Opinion published in March 2010.
DRVs for proteins	Foreseen in 2010
DRVs for energy	Foreseen in 2010
DRVs for micronutrients	To be determined

Scientific Documents

[Scientific Opinion on Dietary Reference Values for carbohydrates and dietary fibre](#)

Published: 25 March 2010 Adopted: 4 December 2009

[Scientific Opinion on establishing Food-Based Dietary Guidelines](#)

Published: 25 March 2010 Adopted: 4 December 2009

[Scientific Opinion on Dietary Reference Values for water](#)

Published: 25 March 2010 Adopted: 4 December 2009

[Scientific Opinion on principles for deriving and applying Dietary Reference Values](#)

Published: 25 March 2010 Adopted: 4 December 2009

[Scientific Opinion on Dietary Reference Values for fats, including saturated fatty acids, polyunsaturated fatty acids, monounsaturated fatty acids, *trans* fatty acids, and cholesterol](#)

Published: 25 March 2010 Adopted: 4 December 2009

Press Releases & News Stories

[EFSA sets European dietary reference values for nutrient intakes](#)

26 March 2010

[EFSA launches public consultation on Dietary Reference Values for carbohydrates, dietary fibre, and fat](#)

5 August 2009

[EFSA launches public consultation on its general approach to establishing Dietary Reference Values](#)

13 August 2008

[EFSA launches public consultation on its draft scientific opinion on Food-Based Dietary Guidelines](#)

13 August 2008

Events & Meetings

[Meeting with national experts on Dietary Reference Values \(DRVs\)](#)

Barcelona, 7 September 2009

Public Consultations & Calls for Contribution

[Public consultation of the Scientific Panel on Dietetic Products, Nutrition and Allergies on the draft Opinions regarding Dietary Reference Values \(formerly Population Reference Intakes\)](#)

Deadline: 15 October 2009

[Public consultation of the Scientific Panel on Dietetic Products, Nutrition and Allergies on the draft opinions regarding Dietary Reference Values \(formerly Population Reference Intakes\)](#)

Deadline: 15 December 2008

[Public consultation of the Scientific Panel on Dietetic Products, Nutrition and Allergies on a draft Opinion related to Food-Based Dietary Guidelines](#)

Deadline: 15 December 2008

Press Releases & News Stories

News Story

26 March 2010

EFSA sets European dietary reference values for nutrient intakes

EFSA's Panel on Dietetic Products, Nutrition and Allergies has established dietary reference values for the intake of carbohydrates, dietary fibre, fats and water. EFSA's advice on nutrient intakes provides an important evidence base to underpin nutritional policies, the setting of diet-related public health targets and the development of consumer information and educational programmes on healthy diets. The opinions published today were adopted by the Panel after consultation with Member States, the scientific community, and other stakeholders. The consultation ensures EFSA has benefited from the widest range of views to

finalise the work and provide the most up-to-date, clear and comprehensive advice to EU decision makers.

Dietary reference values indicate the amount of an individual nutrient that people need for good health depending on their age and gender. The European Commission asked EFSA to update previous European advice in this area, taking into account new scientific evidence and recent recommendations issued at national and international level. EFSA delivers today its first opinions on dietary reference values (DRVs) for carbohydrates dietary fibre, fats, and water. These will be followed by opinions on DRVs for vitamins and minerals.

The Panel conclusions are summarised below:

- The intake of **total carbohydrates** - including carbohydrates from starchy foods such as potatoes and pasta, and from simple carbohydrates such as sugars - should range from 45 to 60% of the total energy intake for both adults and children.
- For **sugars** there is good evidence that frequent consumption of foods high in sugars increases the risk of tooth decay. Data also show links between high intakes of sugars in form of sugar sweetened beverages and weight gain. The Panel however found there was insufficient evidence to set an upper limit for sugars. This is because the possible health effects are mainly related to patterns of food consumption – ie the types of foods consumed and how often they are consumed – rather than a relation to the total intake of sugars itself. Evidence regarding patterns of consumption of sugar-containing foods should be considered by policy makers when making nutrition recommendations and developing food-based dietary guidelines at national level.
- A daily intake of 25 grams of **dietary fibre** is adequate for normal bowel function in adults. In addition evidence in adults shows there are health benefits associated with higher intakes of dietary fibre (e.g. reduced risk of heart disease, type 2 diabetes and weight maintenance).
- Evidence is still inconclusive on the role of the glycemic index and glycemic load[1] in maintaining weight and preventing diet-related diseases.
- Intakes of **fats** should range between 20 to 35% of the total energy intake, with different values given for infants and young children taking into account their specific developmental needs.
- There is good evidence that higher intakes of **saturated fats** and **trans fats** lead to increased blood cholesterol levels which may contribute to development of heart disease. Limiting the intake of saturated and trans fats, with replacement by mono- and poly-unsaturated fatty acids, should be considered by policy makers when making nutrient recommendations and developing food-based dietary guidelines at national level.
- A daily intake of 250 mg of **long-chain omega-3 fatty acids** for adults may reduce the risk of heart disease.
- For water a daily intake of 2.0 litres is considered adequate for women and 2.5 litres for men.

The NDA Panel also published two further opinions, one laying down the general principles for establishing dietary reference values, and another providing advice to policy makers on how to translate nutritional recommendations into messages about foods, called food-based dietary guidelines (FBDGs). FBDGs can guide consumers on what to eat and help them make healthy dietary choices.

The opinions published were finalised following comments received between 2008 and 2009 during an on line consultation process.

In September 2009, EFSA also organised a special meeting with nutrition experts from Member States to exchange views on the draft opinions.

- [Scientific Opinion on principles for deriving and applying Dietary Reference Values](#)
- [Scientific Opinion on Dietary Reference Values for water](#)
- [Scientific Opinion on establishing Food-Based Dietary Guidelines](#)
- [Scientific Opinion on Dietary Reference Values for fats, including saturated fatty acids, polyunsaturated fatty acids, monounsaturated fatty acids, *trans* fatty acids, and cholesterol](#)
- [Scientific Opinion on Dietary Reference Values for carbohydrates and dietary fibre](#)
- [Meeting with national experts on Dietary Reference Values \(DRVs\)](#)
- [Topics A-Z: Dietary reference values and dietary guidelines](#)

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Scientific Documents

Scientific Opinion on principles for deriving and applying Dietary Reference Values

Question number: EFSA-Q-2008-463

Adopted: 4 December 2009

[Summary](#)  (0.1 Mb)

[Opinion](#)  (0.3 Mb)

[Outcome of the Public consultation on the Draft Opinion of the Scientific Panel on Dietetic Products, Nutrition, and Allergies \(NDA\) on principles for deriving and applying Dietary Reference Values](#) 
 (0.2 Mb)

Summary

The European Commission has requested EFSA to review the existing advice of the Scientific Committee on Food on Population Reference Intakes for energy, nutrients and other substances with a nutritional or physiological effect. These reference values date from 1993. Since then new scientific data have become available for some of the nutrients, and scientific advisory bodies in many European Union Member States and in the United States have reported on recommended dietary intakes.

This Opinion focuses on the general principles for development and application of Dietary Reference Values (DRVs) - quantitative reference values for nutrient intakes for healthy individuals and populations which may be used for assessment and planning of diets.

Similarly to the earlier Scientific Committee on Food (SCF) report in 1993 the Panel proposes to derive the following Dietary Reference Values:

- *Population Reference Intakes (PRI)*: the level of (nutrient) intake that is adequate for virtually all people in a population group.
- *Average Requirement (AR)*: the level of (nutrient) intake that is adequate for half of the people in a population group, given a normal distribution of requirement.
- *Lower Threshold Intake (LTI)*: the level of intake below which, on the basis of current knowledge, almost all individuals will be unable to maintain “metabolic integrity”, according to the criterion chosen for each nutrient.

In addition, the Panel also proposes to derive the following Dietary Reference Values:

- *Adequate Intake (AI)*: the value estimated when a Population Reference Intake cannot be established because an average requirement cannot be determined. An Adequate Intake is the average observed daily level of intake by a population group (or groups) of apparently healthy people that is assumed to be adequate.
- *Reference Intake ranges for macronutrients (RI)*: the intake range for macronutrients, expressed as % of the energy intake. These apply to ranges of intakes that are adequate for maintaining health and associated with a low risk of selected chronic diseases.

The Panel will not address the Tolerable Upper Intake Level (UL) as this has been assessed previously. The Tolerable Upper Intake Level is the maximum level of total chronic daily intake of a nutrient (from all sources) judged to be unlikely to pose a risk of adverse health effects to humans[1].

Some of the Reference Values - the Average Requirement, Population Reference Intake and the Lower Threshold Intake - relate to nutrient requirements that are defined by specific criteria of nutrient adequacy. In defining nutrient requirements the selection of criteria to establish nutrient adequacy is an important step. For most nutrients a hierarchy of criteria for nutrient adequacy can be established, ranging from prevention of clinical deficiency to optimisation of body stores, or status. Which criterion, or combination of criteria, will be the most appropriate will be decided on a case-by-case basis.

Within any lifestage group, nutrient requirements vary between individuals and the Average Requirement, Population Reference Intake and Lower Threshold Intake represent different points on the distribution of individual requirements. Nutrient requirements also differ with age, sex and physiological condition, due to differences in the velocity of growth for the younger age groups, and age-related changes in nutrient absorption and body functions and/or functional capacity, such as renal function. Especially in older subjects, variability in functional capacity and in energy expenditure appears higher than in younger adults, particularly for elderly above 75 years.

Because of this, Dietary Reference Values are developed for different life stage and sex groups. The Panel proposes to define the age ranges used for each nutrient on a case-by-case basis depending on the available data. For the age group <6 months requirements are considered to be equal to the supply from breast-milk, except on a case-by-case basis where this does not apply. Separate reference values will be established for pregnant and lactating women, taking into account the additional nutrient requirement for the formation of new tissues, or to compensate for the nutrients lost to the body in the form of human milk, respectively, and considering the physiological adaptations that occur during these conditions.

Interpolation or extrapolation between population groups will be used in instances where no data are available for defined age and sex groups. Scaling methods using isometric (linear with body weight) or allometric (body weight to the power of a chosen exponent) or

interpolation based on other non predefined parameters are being used. Which method is the most appropriate will be decided on a case-by-case basis.

Reference heights and weights are useful when more specificity about body size and nutrient requirements are needed than that provided by life stage categories. In the absence of more recent data, reference weights will be the same as in the SCF report, and for children <1 year, as established by the WHO for fully breastfed infants.

Dietary reference values can be used for different purposes, such as in diet assessment and diet planning, both at the population and individual level, but also as a basis for reference values in food labelling, and in establishing food based dietary guidelines.

In dietary assessment of groups the Average Requirement can be used to estimate the prevalence of inadequate intakes of micronutrients (the Average Requirement cut-point method), if the distribution of nutrient intakes is normal, and intakes are independent from requirements. The Population Reference Intake should not be used for this purpose as this would result in overestimation of the proportion of the group at risk of inadequacy. Probabilistic methods, taking into account both the intake and requirement variation might be used as an alternative, and in case distributions are skewed.

For macronutrients with a defined reference intake range for individuals, the distribution of usual intake of individuals may be assessed to ascertain what proportion of the group lies outside the reference lower and upper limits of the range. In case of energy, the mean usual intake of energy of a defined group, relative to the average requirement, may be used in assessing the adequacy.

For assessment of adequacy of nutrient intakes in individuals Dietary Reference Values are of limited use. Usual intakes below the AR are likely inadequate, and below the Lower Threshold Intake very probably inadequate, while chronic intakes above the Tolerable Upper Intake Level may be associated with an increased risk of adverse effects. For a valid assessment of the adequacy of an individual's usual intake, combined information with anthropometric, biochemical (status) and clinical data is needed.

In dietary planning for groups the usual intake distribution should be between the AR and UL to avoid inadequate, respectively excessive intakes. For nutrients such as vitamins, minerals, and protein, the PRI can be a practical starting point. However, target median intakes higher than the Population Reference Intake might be considered, especially in case of a skewed intake distribution. For macronutrients the distribution of usual intake of individuals should be such as to minimise the proportion of the group that lies outside the reference lower and upper limits of the range. For energy, the reference intake (estimated average energy requirement) of the group based on sex, age, height, weight, and physical activity level of the group may be used as a planning goal.

The goal of planning diets for individuals is to have a low probability of inadequacy while minimising potential risk of excess for each nutrient. For nutrients such as vitamins, minerals, and protein, this is done by ensuring that the usual intake meets the Population Reference Intake or Adequate Intake while not exceeding the Tolerable Upper Intake Level. Population Reference Intakes would be an overestimation for most individuals. For macronutrients which have a reference intake range, the usual intake of individuals should be between the lower and upper bounds of the reference range. For energy, the reference intake (average energy requirement) based on an individual's sex, age, height, weight, and physical activity level may

be used as an initial planning goal; however, body weight must be monitored and intake adjusted as appropriate.

Scientific Opinion on establishing Food-Based Dietary Guidelines

Question number: EFSA-Q-2005-015c

Adopted: 4 December 2009

[Summary](#)  (0.1 Mb)

[Opinion](#)  (0.6 Mb)

[Outcome of the Public Consultation on the Draft Opinion of the Scientific Panel on Dietetic Products, Nutrition, and Allergies \(NDA\) on establishing Food-Based Dietary Guidelines](#)  (0.3 Mb)

Summary

The European Commission requested the European Food Safety Authority (EFSA) to provide guidance on the translation of nutrient based dietary advice into guidance, intended for the European population as a whole, on the contribution of different foods or food groups to an overall diet that would help to maintain good health through optimal nutrition (food-based dietary guidelines).

In preparing its scientific advice to the Commission, the EFSA Scientific Panel on Dietetic Products, Nutrition and Allergies (NDA) reviewed the reasons and general principles for food-based dietary guidelines (FBDG), identified relevant scientific information for establishing FBDG for individual countries within the EU and summarised steps for implementation, monitoring and evaluation for individual countries. Recent reviews and papers on food-based dietary guidelines, on Dietary Reference Values and available information on diet-related health problems and dietary patterns in Europe were taken into account. The Panel also used a questionnaire to gather information on already existing food-based dietary guidelines in a number of EU Member States.

Food-based dietary guidelines constitute science-based policy recommendations in the form of guidelines for healthy eating. They are primarily intended for consumer information and education, and as such, they should be appropriate for the region or country, culturally acceptable and practical to implement. Moreover, they should be consistent, easily understood and easily memorable.

The development of food-based dietary guidelines consists of the integration of scientific knowledge about nutrients, foods and health in order to identify dietary patterns that facilitate the achievement of desirable food and nutrient intakes.

Food-based dietary guidelines should focus on the diet-disease relationships of particular relevance to the specific population. In most EU Member States, overweight and obesity, cardiovascular diseases, cancer, hypertension, dyslipidaemia, type 2 diabetes, and osteoporosis can be identified as important diet-related public health issues. However, the prevalence of these conditions varies considerably between countries. A number of nutrients

of public health importance for EU populations have been identified, i.e. nutrients for which there is evidence of dietary imbalance that might influence the development of these conditions. These include nutrients that might be consumed to excess, e.g. energy, total fat, saturated and *trans* fatty acids, sugars and salt, as well as those for which intake might be inadequate, e.g. unsaturated fatty acids, dietary fibre, water, as well as some vitamins and minerals (such as vitamin D, folate, potassium, calcium, iron, iodine). The occurrence of such nutrient imbalances varies between countries. The differences between EU countries in the prevalence of nutrient imbalances and diet-related public health issues, together with the considerable disparities across countries in dietary habits and traditions, require that food-based dietary guidelines be established by country or region.

The development of food-based dietary guidelines may be carried out using a stepwise approach:

- *Identification of diet-health relationships* - Evidence on diet-health relationships is available from reviews that are carried out regularly by national and international agencies;
- *Identification of country specific diet-related health problems* - Specific diet-related health patterns, disease and mortality rates, should be reviewed to identify and prioritise nutrition problems of public health significance;
- *Identification of nutrients of public health importance* - Nutrient imbalances in the population (groups) should be identified by comparing habitual intake from dietary surveys to Dietary Reference Values, and by using anthropometric and available biochemical indicators of nutritional status;
- *Identification of foods relevant for food-based dietary guidelines* - Food groups that are sources of nutrients of public health importance and foods for which intakes explain differences between groups who do and do not achieve target nutrient recommendations should be identified from observed patterns of dietary intake. Intake of food groups with established relationships to health (e.g. fruit and vegetables) should also be estimated;
- *Identification of food consumption patterns* - Food consumption patterns in the population that are consistent with the achievement of recommended intakes of nutrients should be identified. In addition, it is important to identify population characteristics for each pattern. Recommendations for food-based dietary guidelines should be made taking into account specific needs of population groups;
- *Testing and optimising food-based dietary guidelines* - The coherence and effectiveness of food-based dietary guidelines in meeting nutrient recommendations should be confirmed by modelling of food and nutrient intake data and the food-based dietary guidelines should be adapted appropriately;
- *Graphical representations of food-based dietary guidelines* - Graphical representations of food-based dietary guidelines may be developed in order to facilitate communication to consumers.

To be successful, the process of developing and implementing food-based dietary guidelines should be conducted using a multi-disciplinary approach. The early involvement of stakeholders is recommended to promote the acceptance of the outcome.

It is recommended that food-based dietary guidelines should be consistent with other public policies that have an impact on food availability and be integrated with other policies related to health promotion.

Once established, food-based dietary guidelines should be implemented and their impact monitored and evaluated.

Tolerable upper intake levels for vitamins and minerals

(updated in April 2003)

Terms of Reference

The European Commission has requested the Scientific Committee on Food (SCF):

- a. To review the upper levels of daily intakes of individual vitamins and minerals that are unlikely to pose a risk of adverse health effects.
- b. To provide the basis for the establishment of safety factors, where necessary, for individual vitamins and minerals which would ensure the safety of fortified foods and food supplements containing these nutrients.

Workplan

It is planned that all the vitamins, essential minerals and trace elements which were included by the SCF in its report on recommended dietary intakes (SCF, 1993) will be considered in this review on upper levels, i.e. vitamin A (retinol and β -carotene), vitamin D, vitamin E, vitamin K, thiamin, riboflavin, niacin, vitamin B₆, vitamin B₁₂, folate, biotin, pantothenic acid, vitamin C, sodium, potassium, chloride, fluoride, iodide, magnesium, calcium, phosphorus, iron, zinc, copper, manganese, selenium, molybdenum, and chromium.

On 19 October 2000 the SCF expressed an opinion on [guidelines for the development of Tolerable Upper Intake Levels for vitamins and minerals](#), together with opinions on Tolerable Upper Intake Levels for the following nutrients: [\$\beta\$ -carotene](#), [vitamin B₆](#), [vitamin B₁₂](#), [folate](#), [manganese](#), [selenium](#) and [molybdenum](#).

On 22 November 2000 the SCF expressed an opinion on the Tolerable Upper Intake Level of [vitamin B₂](#).

On 11 July 2001 the SCF expressed an opinion on the Tolerable Upper Intake Level of [vitamin B₁](#).

On 26 September 2001 the SCF expressed two opinions on the Tolerable Upper Intake Levels of [Biotin](#) and [Magnesium](#).

On 17 April 2002 the SCF expressed two opinions on the Tolerable Upper Intake Levels of [pantothenic acid](#) and [nicotinic acid and nicotinamide \(niacin\)](#).

On 26 September 2002 the SCF expressed two opinions on the Tolerable Upper Intake Levels of [iodine](#) and preformed [vitamin A \(retinol and retinyl esters\)](#).

On 4 December 2002 the SCF expressed an opinion on the Tolerable Upper Intake Level of [vitamin D](#).

On 5 March 2003 the SCF expressed two opinions on the Tolerable Upper Intake Levels of [zinc](#) and [copper](#).

On 4 April 2003 the SCF expressed four opinions on the Tolerable Upper Intake Level of [calcium](#), [vitamin E](#), [vitamin K](#) and [chromium](#).

Opinions on the remaining micronutrients will be prepared by the European Food Safety Authority.

Reference

Scientific Committee for Food (1993). Nutrient and energy intakes for the European Community. Reports of the Scientific Committee for Food, Thirty First Series. European Commission, Luxembourg. <http://ec.europa.eu/food/fs/sc/scf/out89.pdf>.



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